

AMENDMENTS TO THE CLAIMS

- 1 1. (Currently Amended) A method for allowing multiple types of clients to use a
2 database application without hard-coding presentation logic for each of the multiple
3 types of clients into the database application, the method comprising the steps of:
4 prior to providing data from the database application to a particular client, performing
5 the steps of:
6 converting the data that is to be transmitted from the database application to
7 the particular client into an XML output without regard to the device
8 type of the particular client by:
9 identifying a data type to which the data corresponds, wherein
10 the data type reflects a type of the data that is read out of
11 the database;
12 selecting from a plurality of document type definitions, a
13 document type definition associated with said data type;
14 and
15 converting the data to XML output based on said selected
16 document type definition;
17 identifying the particular client device type of the particular client;
18 wherein sets of metadata are each associated with a client device type of a
19 plurality of client device types and indicates how to convert said XML
20 output to output for the client device type;
21 selecting, based on the particular client device type, a particular set of
22 metadata from among the sets of metadata;

23 reading the particular set of metadata ~~selected based on the client device type,~~
24 ~~wherein the metadata indicates how to convert said XML output to~~
25 ~~output for said client device type; and~~
26 based on ~~said~~ the particular set of metadata, converting the XML output to
27 output for ~~said~~ the particular client device type; and
28 providing the output for ~~said~~ the particular client device type to ~~said~~ the particular
29 client.

1 2. (Currently Amended) The method of Claim 1 wherein:
2 the step of reading the particular set of metadata includes reading an XSL style sheet
3 associated with said particular client device type; and
4 the step of converting the XML output includes applying the XSL style sheet to said
5 XML output.

1 3. (Previously Presented) The method of Claim 1 wherein the step of converting the data
2 that is to be transmitted from the database application to the particular client into an
3 XML output includes converting the data based on one or more document type
4 definition files.

1 4. (Previously Presented) The method of Claim 1 wherein:
2 the particular client is a Telnet client;
3 the Telnet client communicates with a Telnet server to request data from said database
4 application; and
5 the step of providing said output to said particular client includes the steps of
6 sending the output to said Telnet server using a recipient specific format; and

7 said Telnet server providing said output to said Telnet client.

1 5. (Cancelled)

1 6. (Original) The method of Claim 1 wherein the XML output includes display
2 instruction data indicating that said data is to be displayed in a first manner.

1 7. (Currently Amended) The method of Claim 6 wherein the step of converting the XML
2 output includes the step of generating output for said particular client device type that
3 causes said data to be displayed in a second manner that is different than said first
4 manner when said particular client device type is not able to display said data in the
5 first manner.

1 8. (Currently Amended) A method for using a database application with clients that
2 support multiple mark-up language interpreters without hard-coding into the database
3 application logic to support each of the multiple mark-up language interpreters, the
4 method comprising the steps of:
5 converting output of the database application to first data that conforms to a first

6 mark-up language without regard to the type of mark-up language interpreter
7 supported by a client to which the output is to be sent by:

8 identifying a data type to which the data corresponds, wherein the data

9 type reflects a type of the data that is read out of the database;

10 selecting from a plurality of document type definitions, a document

11 type definition associated with said data type; and

12 converting the data to XML output based on said selected document

13 type definition;

14 wherein a plurality of mark-up languages are each associated with one or more client
15 device types of a plurality of client device types;
16 selecting, based on a client device type to which the output is to be sent, a second
17 mark-up language of said plurality of mark-up languages that is different than
18 said first mark-up language;
19 converting the first data to second data that conforms to the second mark-up language;
20 and
21 sending the second data to the client.

1 9. (Original) The method of Claim 8 wherein the step of converting the first data to
2 second data is performed by applying an XSL style sheet to said first data.

1 10. (Original) The method of Claim 8 wherein the step of sending the second data to the
2 client includes sending the data to a server to which the client is connected through a
3 wireless connection, and then sending the data from the server to the client over said
4 wireless connection.

1 11. (Cancelled)

1 12. (Previously Presented) A system comprising:
2 a database system;
3 a database application operatively coupled to said database system;
4 said database application including:
5 application logic that:

6 retrieves data from said database system to produce a first output in a
7 format that is independent of a type of client device that is to
8 receive the output;
9 an XML processor that:
10 identifies a data type to which the data retrieved from the database
11 corresponds;
12 identifies a document type definition associated with said data type;
13 and
14 applies the document type definition to the data from the database,
15 thereby formatting the first output into XML to produce second
16 output that is independent of the type of client device is to
17 receive the output; and
18 an XSL processor that converts the second output into a third output based on
19 an XSL style sheet associated with the type of client device that is to
20 receive the output; wherein the XSL style sheet is selected based on the
21 type of client device.

- 1 13. (Original) The system of Claim 12 further comprising:
2 a plurality of servers operatively coupled to said database application;
3 said plurality of servers including at least a first server configured to provide services
4 to clients that support a first protocol and a second server configured to
5 provide services to clients that support a second protocol that is different from
6 said first protocol; and
7 a plurality of clients including a first client that interacts with said database

8 application through said first server and a second client that interacts with said
9 database application through said second server.

1 14. (Currently Amended) A computer-readable medium carrying instructions for allowing
2 multiple types of clients to use a database application without hard-coding
3 presentation logic for each of the multiple types of clients into the database
4 application, the instructions including instructions for performing the steps of:
5 prior to providing data from the database application to a particular client, performing

6 the steps of:

7 converting the data that is to be transmitted from the database application to
8 the particular client into an XML output without regard to the device
9 type of the particular client by:

10 identifying a data type to which the data corresponds;

11 selecting from a plurality of document type definitions, a

12 document type definition associated with said data type;

13 and

14 converting the data to XML output based on said selected

15 document type definition;

16 identifying the particular client device type of the particular client;

17 wherein sets of metadata are each associated with a client device type of a

18 plurality of client device types and indicates how to convert said XML

19 output to output for the client device type;

20 selecting, based on the particular client device type, a particular set of

21 metadata from among the sets of metadata;

22 reading the particular set of metadata~~selected based on the client device type,~~
23 ~~wherein the metadata indicates how to convert said XML output to~~
24 ~~output for said client device type; and~~
25 based on ~~said~~the particular set of metadata, converting the XML output to
26 output for ~~said~~the particular client device type; and
27 providing the output for ~~said~~the particular client device type to ~~said~~the particular
28 client.

1 15. (Currently Amended) The computer-readable medium of Claim 14 wherein:
2 the step of reading the particular set of metadata includes reading an XSL style sheet
3 associated with said particular client device type; and
4 the step of converting the XML output includes applying the XSL style sheet to said
5 XML output.

1 16. (Previously Presented) The computer-readable medium of Claim 14 wherein the step
2 of converting the data that is to be transmitted from the database application to the
3 particular client into an XML output includes converting the data based on one or
4 more document type definition files.

1 17. (Previously Presented) The computer-readable medium of Claim 14 wherein:
2 the particular client is a Telnet client;
3 the Telnet client communicates with a Telnet server to request data from said database
4 application; and
5 the step of providing said output to said particular client includes the steps of
6 sending the output to said Telnet server using a recipient specific format; and

7 said Telnet server providing said output to said Telnet client.

1 18. (Cancelled)

1 19. (Original) The computer-readable medium of Claim 14 wherein the XML output
2 includes display instruction data indicating that said data is to be displayed in a first
3 manner.

1 20. (Currently Amended) The computer-readable medium of Claim 19 wherein the step of
2 converting the XML output includes the step of generating output for said particular
3 client device type that causes said data to be displayed in a second manner that is
4 different than said first manner when said particular client device type is not able to
5 display said data in the first manner.

1 21. (Cancelled)

1 22. (Cancelled)

1 23. (Currently Amended) The method of Claim 1, wherein the particular client device
2 ~~identify~~type indicates at least one of a dumb terminal, a telnet terminal, a bar code
3 scanner and a browser-less device.

1 24. (Previously Presented) The system of Claim 12, wherein the type of client comprises
2 at least one of a dumb terminal, a telnet terminal, a bar code scanner and a browser-
3 less device.

1 25. (Currently Amended) The computer readable medium of Claim 14, wherein the
2 particular client device ~~identify~~type indicates at least one of a dumb terminal, a
3 telnet terminal, a bar code scanner and a browser-less device.

- 1 26. (Previously Presented) The method of Claim 1, wherein the data type indicates at least
2 one of a data entry form, a queried data, a message, a form level query data and a field
3 level query data.
- 1 27. (Previously Presented) The system of Claim 12, wherein the data type indicates at
2 least one of a data entry form, a queried data, a message, a form level query data and a
3 field level query data.
- 1 28. (Previously Presented) The computer readable medium of Claim 14, wherein the data
2 type indicates at least one of a data entry form, a queried data, a message, a form level
3 query data and a field level query data.